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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/842,573	04/25/2001	Naoto Arai	10873.706US01	7468
7590	07/13/2004		EXAMINER	
MERCHANT & GOULD P.C. P.O. Box 2903 Minneapolis, MN 55402-0903			WILLS, MONIQUE M	
			ART UNIT	PAPER NUMBER
			1746	

DATE MAILED: 07/13/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	J
	09/842,573	ARAI ET AL.	
	Examiner	Art Unit	
	Monique M Wills	1746	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 21 June 2004.
 2a) This action is **FINAL**. 2b) This action is non-final.
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-6,9 and 10 is/are pending in the application.
 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
 5) Claim(s) _____ is/are allowed.
 6) Claim(s) 1-6,9 and 10 is/are rejected.
 7) Claim(s) _____ is/are objected to.
 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
 10) The drawing(s) filed on 25 April 2001 is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____. |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____. | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| | 6) <input type="checkbox"/> Other: _____. |

DETAILED ACTION

Request for Continued Examination

A Request for Continued Examination (RCE) under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on June 21, 2004 has been entered.

The rejection of claims 1-6, 9 & 10 under 35 U.S.C. §102(b) as being anticipated by Shimakawa U.S. Patent 5,663,008, is overcome.

The claims are newly rejected as follows:

- Claim 10 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
- Claims 1-6 & 9-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Holden et al., U.S. Patent 6,432,582 in view of Okamoto et al. U.S. Patent 5,780,180.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 10 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 10 provides for the use of the battery assembly as a driving power source of a vehicle but, since the claim does not set forth any steps involved in the method/process, it is unclear what method/process applicant is intending to encompass. A claim is indefinite where it merely recites a use without any active, positive steps delimiting how this use is actually practiced. Claim 10 is rejected under 35 U.S.C. 101 because the claimed recitation of a use, without setting forth any steps involved in the process, results in an improper definition of a process, i.e., results in a claim which is not a proper process claim under 35 U.S.C. 101. See for example *Ex parte Dunki*, 153 USPQ 678 (Bd. App. 1967) and *Clinical Products, Ltd. v. Brenner*, 255 F. Supp. 131, 149 USPQ 475 (D.D.C. 1966).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-6 & 9-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Holden et al., U.S. Patent 6,432,582 in view of Okamoto et al. U.S. Patent 5,780,180.

With respect to claim 1, Holden teaches a battery module (28) comprising: a plurality of cells, wherein each cell contains an electrode group and an electrolyte (col. 4, lines 30-35);

a single container (14) housing the plurality of cells; an upstanding partition for separating adjacent cells (col. 4, lines 30-40); and a single safety valve operating in accordance with internal pressure of the container (Fig. 1 & col. 9, lines 37-45) that has a working pressure set so that the safety valve is opening when the module reaches its maximum internal pressure (col. 11, lines 30-38). With respect to claim 4, the battery module (28) comprises a plurality of cells electrically connected together (col. 4, lines 45-50). In re claim 5, the battery module comprises 6 cells (See Example 1 & Figure 2).

Holden is silent to a plurality of battery modules electrically connected together (claim 1), where the working pressure is set so that a change in battery assembly weight after charge equalization is 0.015g or less per ampere-hour capacity (claim 2); working pressure of 0.3 to 0.8 MPa under temperature conditions of 20 to 60°C (claim 3); 20 to 50 battery modules (claim 6); battery capacity of 6.5 to 7.2 ampere-hour per cell (claim 9); using the assembly as a driving power source for a vehicle (claim 10).

Okamoto teaches that it is conventional to employ a plurality of battery modules (4) electrically connected together (Fig. 1). The reference also teaches a working pressure of a safety valve of a lead acid battery within the range of 6-8kgf/cm² (0.58-0.78 MPa). See column 6, lines 1-5.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the instant invention was made to employ the electrically connecting modular arrangement of Okamoto, in the assembly of Holden, in order to increase discharge capacity to provide elevated electrical demands to a load.

Concerning claim 2, it would have been obvious to one of ordinary skill in the art at the time the instant invention was made to set the pressure of the safety valve so that a change in battery assembly weight after the charge equalization is 0.015g or less per ampere-hour

capacity, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ (CCPA 1980). The skilled artisan recognizes that range of charge equalization directly effects the battery pack service life because each battery in the pack is monitored and controlled individually to perform equally. If one battery is relatively weaker than the other batteries, it must be selectively charged for a longer period or more frequently than other batteries so that it does not have the effect of weakening the overall performance of the pack.

In re claim 3, it would have been obvious to one of ordinary skill in the art at the time the instant invention to employ the safety valve working pressure of 0.58 to 0.78 of Okamoto, in the cells of Holden, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ (CCPA 1980). The skilled artisan recognizes that the working pressure of the safety valve directly effects the capacity of the electrodes and activates the contact surfaces of the electrodes.

With respect to claim 6, it would have been obvious to one of ordinary skill in the art at the time the instant invention was made to employ 20 to 50 battery modules in the assembly of Holden in view of Okamoto, since it has been held that mere duplication of the essential working parts of advice involves only routine skill in the art. *St. Regis Paper Co. v. Bemis Co.*, 193 USPQ 8. The skilled artisan would be motivated to duplicate the number of battery modules, in order to power output to a load.

As to claim 9, it would have been obvious to one of ordinary skill in the art, at the time the instant invention was made to employ a battery capacity of 6.5 to 7.2 ampere-hour per cell, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ (CCPA 1980).

The skilled artisan recognizes that the battery capacity directly effects battery life and quantity of power discharged to a load.

With respect to claim 10, although Holden does not expressly disclose using the battery assembly as a driving power source of a vehicle, the lead-acid batteries of Holden are capable of performing as a power source for a vehicle, because Okamoto teaches that lead-acid battery may be used as a power source for electric vehicles (col. 1, lines 18-22).

Response to Arguments

Applicant's arguments with respect to claims 1-6 & 9-10 as being anticipated by Applicant's arguments, see page 4, filed June 21, 2004, with respect to the rejection(s) of claim(s) 1-6 & 9-10 under 35 U.S.C. §102(b) as being anticipated by Shimakawa et al., U.S. Patent 6,432,582 have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made over of Holden et al., U.S. Patent 6,432,582 in view of Okamoto et al., U.S. Patent 5,780,180.

Conclusion

Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Monique Wills whose telephone number is (571) 272-1309. The Examiner can normally be reached on Monday-Friday from 8:30am to 5:00 pm.

If attempts to reach Examiner by telephone are unsuccessful, the Examiner's supervisor, Michael Barr, may be reached at 571-272-1414. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR.

Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

MW

07/11/04



**MICHAEL BARR
PRIMARY EXAMINER**